2. The class SingleTable represents a table at a restaurant.

```
public class SingleTable
{
    /** Returns the number of seats at this table. The value is always greater than or equal to 4. */
   public int getNumSeats()
    { /* implementation not shown */ }
    /** Returns the height of this table in centimeters. */
   public int getHeight()
    { /* implementation not shown */ }
    /** Returns the quality of the view from this table. */
   public double getViewQuality()
    { /* implementation not shown */ }
    /** Sets the quality of the view from this table to value. */
   public void setViewQuality(double value)
    { /* implementation not shown */ }
    // There may be instance variables, constructors, and methods that are not shown.
}
```

At the restaurant, customers can sit at tables that are composed of two single tables pushed together. You will write a class CombinedTable to represent the result of combining two SingleTable objects, based on the following rules and the examples in the chart that follows.

- A CombinedTable can seat a number of customers that is two fewer than the total number of seats in its two SingleTable objects (to account for seats lost when the tables are pushed together).
- A CombinedTable has a desirability that depends on the views and heights of the two single tables. If the two single tables of a CombinedTable object are the same height, the desirability of the CombinedTable object is the average of the view qualities of the two single tables.
- If the two single tables of a CombinedTable object are not the same height, the desirability of the CombinedTable object is 10 units less than the average of the view qualities of the two single tables.

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© 2021 College Board. Visit College Board on the web: collegeboard.org. Assume SingleTable objects t1, t2, and t3 have been created as follows.

- SingleTable t1 has 4 seats, a view quality of 60.0, and a height of 74 centimeters.
- SingleTable t2 has 8 seats, a view quality of 70.0, and a height of 74 centimeters.
- SingleTable t3 has 12 seats, a view quality of 75.0, and a height of 76 centimeters.

Value Returned **Class Specification** Statement (blank if no value) CombinedTable c1 = newA CombinedTable is composed of two CombinedTable(t1, t2); SingleTable objects. Since its two single tables have a total of 12 cl.canSeat(9); true seats, c1 can seat 10 or fewer people. c1 cannot seat 11 people. cl.canSeat(11); false Because c1's two single tables are the same c1.getDesirability(); 65.0 height, its desirability is the average of 60.0 and 70.0. CombinedTable c2 = new A CombinedTable is composed of two SingleTable objects. CombinedTable(t2, t3); Since its two single tables have a total of 20 c2.canSeat(18);true seats, c2 can seat 18 or fewer people. Because c2's two single tables are not the same height, its desirability is 10 units less than the c2.getDesirability(); 62.5 average of 70.0 and 75.0. Changing the view quality of one of the tables that makes up c2 changes the desirability of c2, as illustrated in the next line of the chart. t2.setViewQuality(80); Since setViewQuality is a SingleTable method, you do not need to write it. Because the view quality of t2 changed, the 67.5 c2.getDesirability(); desirability of c2 has also changed.

The chart contains a sample code execution sequence and the corresponding results.

The last line of the chart illustrates that when the characteristics of a SingleTable change, so do those of the CombinedTable that contains it.

Write the complete CombinedTable class. Your implementation must meet all specifications and conform to the examples shown in the preceding chart.

Begin your response at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number. If there are multiple parts to this question, write the part letter with your response.

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